In the Claims:

Please cancel Claims 1-6, 14, 15, 25 and 26 without disclaimer or prejudice, amend Claims 7, 11, 16 and 18 and add new Claims 27-41 as follows:

1-6. (Canceled)

7. (Currently Amended) An apparatus for the detection of extravasation, comprising:

at least a first energy source to supply X-ray energy or gamma ray energy to tissue in the vicinity of a site; and

at least a first sensor to measure a signal resulting from the energy supplied to the tissue by the first energy source, the signal being proportional to the X-ray energy or gamma ray energy transformed, reflected, scattered or absorbed by an extravasated fluid present in the vicinity of the site.

8. (Previously Presented) The apparatus of claim 7 wherein the at least a first energy source and the at last a first sensor are connected by a frame member to fix the geometry of the at least a first energy source and the at least a first sensor about the site so the imaging energy from the at least a first energy source passes through tissue in the vicinity of the site to the at least a first sensor.

9. (Original) The apparatus of claim 7, further comprising an alarm to indicate the occurrence of extravasation.

10. (Original) The apparatus of claim 9 wherein an alarm is indicated if the energy measured at the at least a first sensor falls below a threshold value.

11. (Currently Amended) An apparatus for the detection of extravasation, comprising:

at least a first energy source to supply ultrasonic energy to tissue in the vicinity of a site; and

at least a first sensor to measure a signal resulting from the energy supplied to the tissue by the first energy source, the signal being proportional to the ultrasonic energy reflected, scattered or absorbed by an extravasated fluid present in the vicinity of the site.

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12. (Original) The apparatus of claim 11, further comprising an alarm system to indicate the occurrence of extravasation.

13. (Original) The apparatus of claim 12 wherein the occurrence of extravasation is determined by comparing the energy measured at the at least a first sensor to a threshold value.

14-15. (Canceled)

16. (Currently Amended) A method for detecting extravasation in an injection procedure, comprising:

supplying at least one of X-ray energy, gamma ray energy or ultrasonic energy to tissue in the vicinity of a site; [[and]]

measuring a signal resulting from the energy supplied to the tissue, the measured signal being proportional to the X-ray energy, gamma ray energy or ultrasonic energy transformed, reflected, scattered or absorbed by an extravasated fluid present in the vicinity of the site; and

analyzing the measured signal to determine whether an extravasated fluid is present in the vicinity of the site.

17. (Original) The method of Claim 16, further comprising:

measuring a baseline signal before beginning the injection procedure.

18. (Currently Amended) An injection system comprising:

a powered injector; and

an extravasation detection apparatus comprising:

at least one source of energy to supply at least one of x-ray energy, gamma ray energy, or ultrasonic energy to tissue in the vicinity of a site; and

at least one sensor to measure a signal resulting from the energy supplied to the tissue in the vicinity of the site, the signal being proportional to the x-ray energy, gamma ray energy or ultrasonic energy transformed, reflected, scattered or absorbed by an extravasated fluid present in the vicinity of the site.

19. (Original) The apparatus of claim 18, further comprising an alarm in communication with the extravasation detection apparatus to indicate occurrence of extravasation.

20. (Original) The apparatus of claim 18 wherein the injector and the extravasation detection apparatus are in communicative connection so that an injection procedure is stopped by the injector upon detection of extravasation.

21. (Original) The apparatus of claim 19 wherein the alarm indicates extravasation based upon comparing the signal to a threshold value.

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22. (Original) A method for detecting extravasation in an injection procedure, comprising:

mixing an additive with a contrast medium;

injecting the contrast medium containing the additive;

supplying energy to tissue in the vicinity of a site; and

measuring a signal resulting from the energy supplied to the tissue, the additive being adapted to affect the signal.

23. (Original) A method of detecting extravasation of an injection medium, comprising:

supplying energy to tissue in the vicinity of a site, the energy being selected so that the injection medium will reflect, scatter or absorb the energy; and

measuring a signal proportional to the amount of energy reflected, scattered of absorbed.

24. (Original) The method of Claim 23, further comprising:

measuring a baseline signal corresponding to a situation in which there is no extravasation.

25-26. (Canceled)

27. (New) The method of Claim 17, further comprising:

comparing the measured signal to the baseline signal to determine whether an extravasated fluid is present in the vicinity of the site.

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28. (New) The method of Claim 22, further comprising:

analyzing the measured signal to determine whether an extravasated fluid is present in the vicinity of the site.

29. (New) The method of Claim 22, further comprising:

measuring a baseline signal before beginning the injection procedure.

30. (New) The method of Claim 29, further comprising:

comparing the measured signal to the baseline signal to determine whether an extravasated fluid is present in the vicinity of the site.

31. (New) The method of Claim 23, further comprising:

analyzing the measured signal to determine whether an extravasated fluid is present in the vicinity of the site.

32. (New) The method of Claim 24, further comprising:

comparing the measured signal to the baseline signal to determine whether an extravasated fluid is present in the vicinity of the site.

33. (New) The apparatus of Claim 7 wherein the first energy source and the first sensor do not contact the skin of a patient.

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34. (New) The apparatus of Claim 7 wherein the first energy source and the first sensor are positioned in a manner so that the vicinity of an injection site is available for palpation and visible for visual inspection.

35. (New) The apparatus of Claim 11 wherein the first energy source and the first sensor do not contact the skin of a patient.

36. (New) The apparatus of Claim 11 wherein the first energy source and the first sensor are positioned in a manner so that the vicinity of an injection site is available for palpation and visible for visual inspection.

37. (New) The injection system of Claim 18 wherein the energy source and the sensor do not contact the skin of a patient.

38. (New) The injection system of Claim 18 wherein the energy source and the sensor are positioned in a manner so that the vicinity of an injection site is available for palpation and visible for visual inspection.

39. (New) An injection system for delivering fluid to a patient during an injection procedure, the injection system comprising:

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an injector; and

an extravasation detection system in communication with the injector, the extravasation detection system comprising:

an energy source adapted to supply at least one of x-ray energy, gamma ray energy, or ultrasonic energy to tissue of the patient in the vicinity of a fluid injection site; and

a sensor adapted to measure a signal resulting from the energy supplied to the tissue in the vicinity of the fluid injection site, the signal being proportional to the x-ray energy, gamma ray energy or ultrasonic energy transformed, reflected, scattered or absorbed by an extravasated fluid present in the vicinity of the fluid injection site;

wherein the injection procedure is terminated when an extravasated fluid is detected by the extravasation detection system.

40. (New) A method for detecting extravasation during a fluid injection procedure, comprising:

supplying x-ray energy, gamma ray energy or ultrasonic energy to tissue in the vicinity of a proposed fluid injection site;

measuring a baseline signal resulting from the energy supplied to the tissue;

commencing the fluid injection procedure;

supplying x-ray energy, gamma ray energy or ultrasonic energy to tissue in the vicinity of the fluid injection site;

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measuring a signal resulting from the energy supplied to the tissue, the measured signal being proportional to the X-ray energy, gamma ray energy or ultrasonic energy transformed, reflected, scattered or absorbed by an extravasated fluid present in the vicinity of the site; and

comparing the measured signal to the baseline signal to determine whether an extravasated fluid is present in the vicinity of the site.

41. (New) The method of Claim 40, further comprising:

terminating the injection procedure if an extravasated fluid is present.